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CHORAL INTONATION: A REVIEW AND SYNTHESIS OF THE LITERATURE

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Choral Intonation:
A Review and Synthesis of the Literature

Choral sound is a complex phenomenon. The choral director must consider many aspects of singing and musicality in order to produce a satisfying musical performance. A primary consideration in this process is intonation. Marvin (1988) explains that "when a choir sings in tune, the listener is allowed to hear more clearly the music's structural components: harmony, melody, rhythm, and texture. Thus, singing in tune heightens the awareness of structure, which facilitates communication" (p.29).

Choral intonation has three distinct facets: the tuning among individual voices in the choir; the tuning among sections of the choir; and tuning between the choir as a whole and the accompanying instruments. H.R. Wilson (1959) further describes the differences in tuning:

> "1) In unaccompanied or a cappella singing, although the voice parts stay in tune with each other, the entire ensemble flats or sharps uniformly from the starting pitch. 2) In accompanied singing the entire ensemble flats or sharps consistently from the pitch or key established by the accompanist. 3) The voice parts sing out of tune with one another as well as flatting or sharping the given pitch in unaccompanied singing or the established key in accompanied singing" (p.83).

Definitions of choral intonation are found throughout the literature. For the sake of clarity, three viewpoints will be combined to create a composite definition. Marvin (1991) observes that "pitch and timbre together define intonation" (p.29). Robinson and Winold (1976) describe an in-tune performance as "one in which no beats, or at any rate extremely slow beats, are heard" (p.257). They also suggest that "it is possible to train singers to listen for beats in unison and octaves and other intervals. . ."(p.257). Beats in the sound of the music will thus define whether the pitch is in tune or not, constituting the second part of the definiton. Garretson (1975) observes that"when intonation difficulties occur within the

group, the pitch variation is usually less than a half tone, since otherwise the group would be singing a wrong note, and most individuals would recognize such a discrepancy. A helpful device is therefore to train the choir to sing quarter tones" (p.174). A choir that is able to maintain good choral intonation is thus defined as a choir that has the ability to be sensitive to intervals smaller than a semitone.

Preliminary Considerations: Temperment

To realize and decide on the correct intonation for the choir takes some thought by the conductor toward the tuning systems available. There are four different methods of tuning, all having a benefit in certain areas of choral music. These tuning systems are Just Intonation, Pythagorean , Mean-Tone Tuning, and Equal Temperment. Lindy (1980) defines these systems as follows. In Pythagorean tuning, the "5ths and 4ths are pure (untempered); [This tuning system] has the largest major 2nds and 3rds and smallest minor 2nds and 3rds . . . . Pythagorean intonation is well suited not only to parallel organum but also to late Gothic polyphonic compositions" (p.485). Mean-Tone tuning was developed ". . . particularly on instruments lacking any capacity for flexibility of intonation during performance . . . a tuning with pure major 3rds . . . divided into two equal whole tones . . . ; to achieve this the tuner must temper the 5ths and 4ths, making the 5ths smaller and the 4ths larger than pure . . . in all mean-tone temperments the diatonic semitone is larger than the chromatic semitone" (p.875). Just intonation, ". . . refers to the consistent use of harmonic intervals tuned so pure that they do not beat, and of melodic intervals derived from such an arrangement, including more than one size of whole tone . . . on normal keyboard instruments, however, the term refers to a system of tuning in which some 5ths . . . are left distastefully smaller than pure in order that the other 5ths and most of the 3rds will not beat" (p.756). The tuning system which our Western society is most comfortable with is the Equal Temperment tuning. This is "a tuning of the scale based on a cycle of 12 identical 5ths and with the octaves divided into 12 equal semitones, and consequently with

3rds and 6ths tempered, uniformly, much more than 5ths and 4ths . . . equal temperment is nowadays very widely regarded as the normal tuning of the Western, 12-note chromatic scale" (p.218).

In considering these tuning systems, Robinson and Winold (1976) have stated one primary reason for knowing about these different tuning systems: "Knowing that keyboard instruments are usually close to equal temperment, and knowing the preference of some string players for the sharper thirds of Pythagorean tuning, can prepare the conductor for possible problems when the chorus is singing with these instruments" (p.261). Realizing the value of discovering the variety of tuning systems, then, leads us on to the definition of each system and the reasons for using one system over another. Jones (1977) notes that when "a choral director asks what intonation to use, the Pythagorean or the naturally pure, the answer is both - depending upon the style of the composition. That is, whether it is homophonic or polyphonic, chordal or melodic" (p.65). This is true for the choice between any of the systems: each will benefit specific situations in the music. Cleall (1955) states that

> "natural vocal tuning, with greater and lesser whole tones, and a semitone not obviously related to either tone, gives us greater variety of sound by far than the piano. Having a semitone of wider span confers certain advantages, the chief being that passages in sixteenth-century music which are unpleasant on the piano become beautiful on voices, because the simultaneous major and minor thirds are not close enough to generate friction, as it were" (p.37).

Cleall goes on to say that "with the natural scale, the overtones of its constituent notes perpetrate each other's vibration: the mass of sound is greater, for each note draws life and strength from the others" (p.39). Jones (1977) also mentions that the Pythagorean intonation gives "truer concepts to music structure such as the leading tone principle which is found in the larger major thirds of this Pythagorean (perfect fifth) intonation". Jones concludes that this system of intonation "will make the melody sound characteristically

precise and clear, and the interval will become secure and distinguishable", although "in harmonic places of rest [it] would sound hard and unclean against the true harmony of the naturally pure intonation of major sounds" (p.65). Describing the Pythagorean system, Robinson and Winold (1976) show that the Pythagorean tuning is "based exclusively on the pure fifth" and "equal-sized whole tones" (p.259). They go on to say that the mean -tone intonation system is "based upon pure major thirds and slightly flat fifths", that the Equal temperment system in "based upon the principle of dividing the octave into 12 equal half-steps. . . none of them conform to the pure or natural ratios" (p.259-260), and that modulation is impossible within the Just Intonation system, where the advantages are pure or natural triads on C, F and G, whereas the "disadvantages outnumber its advantages" (p.258); any progression involving these notes will always end up about one-quarter of a half-step flat. Robertson and Winold (1976) have also found the major triad in the Just Intonation system "somewhat dull in sonority and (conductors) prefer the triad with the higher third of equal temperment or even Pythagorean tuning. Especially in the case of the dominant triad, the sharper third may serve to accentuate the leading tone tendancy of the seventh scale degree" (p.260).

The literature thus indicates that the choral conductor must consider the different tuning systems, especially where there is instrumental accompaniment. The thirds and sevenths seem to have specific problem areas in all systems of tuning. Realizing this, the choral conductor will be able to plan for problems which may arise, simply through adding instrumental accompaniment to singing. With this in place, the choir will have a foundation on which to base intonation within the choir itself.

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Literature from 1970-1992

Darrow (1975) synthesized literature on a number of topics concerning choral music. In his discussion of choral training, Darrow cited 145 authors, and compiled the information gathered from these writers. This paper represents a continuation of Darrow's synthesis in examining the writings of authors since 1970 in the area of choral intonation. The rubrics under which the material will be organized are the same four categories used by Darrow: tone production; musicianship and the music; mental and physical attitudes; and environmental factors. In addition, this paper will also consider an additional category: the conductor's specific reponsibility or role in monitoring choral intonation.

TONE PRODUCTION

Breath Support

There seems to be a general consensus that breath support is of major consequence with regard to tuning. Angell (1978) states that "singing flat is usually caused by sluggish, incomplete breath control" (p.88). Lock (1983) adds that "many singers do not give adequate breath support to their singing tone. No one, in all liklihood, has ever told them how to do this" (p.4) Garretson (1975) observes that "accurate pitch and intonation are basically dependent on . . . correctly produced tones, properly supported by the breath" (p.182), while Grant (1987) notes that "without a well-managed supply of air the voice cannot function effectively and pitch cannot be maintained" (p.6). Powell (1991) specifies that "when insufficient breath is used, the tone will be flat; when too much breath is used, the tone is likely to go sharp" (p.43), and Heffernan (1982) cautions that poor posture and shallow breathing create poor tone production, and therefore poor intonation. Doscher (1991) draws attention to the musical moment which is most likely to have poor intonation: ". . . the ends of phrases are almost always flat because there is neither energy nor air left" (p.27).

Vowel Formation

Another area considered by many writers as leading to poor intonation is vowel formation. The shape of the cavity in the mouth and the position of the tongue in shaping the vowel is of paramount importance to maintaining good intonation. Vowels which are produced in the same manner by all members of the choir will aid intonation. Marvin (1988) notes that the "vowels as well as the pitch must be tuned; when vowels are matched, the pitch can be unified" (p.29). Moe (1972) also mentions that "vowels which are poorly unified may cause intonation problems" (p.11). Angell (1978) has found that "sometimes the vocal machinery is not properly set up to obtain a definite vowel sound" (p.88). Grant (1987) states that

> "the closed vowels 'ooh' and 'ee', particularly when used at softer dynamic levels, are more easily tuned than the open vowels 'oh' and 'ah'. Yet it is the brilliance and vibrancy of the open vowels used as coloring agents that can help turn a sagging, under-pitch passage into a well-tuned phrase . . . . Pitches in both extremes of the vocal range can be aided by careful adjustment of vowel color and the vocal registers being used . . . . By brightening the vowel and adding the mouth and head resonators to the throat and chest resonators, pitch accuracy can be improved . . . . The sensation of an 'inner smile', and a somewhat brighter vowel will provide a narrower, more focused band of sound which is more readily tuned . . . . Both the singers and conductor must listen carefully for uniform vowels" (p.6).

In addition to the formation of the vowel in the mouth cavity, the thought process in forming a vowel and the "color" that the vowel takes on is important both for the singer and for the choir as a whole. Heffernan (1982) observes that a problem in producing good intonation may be the "wrong concept of the vowel to be sung . . . the color must be unified on its pronunciation" (p.69). Powell (1991) supports this view when he states that "virtually all directors realize that the color of the vowels we sing influences our pitch.

'Dark' vowels tend to lead to flat singing; 'bright' vowels tend to induce sharp singing . . . . [Our goal is to ensure] that our singers sing with unified vowels that are neither 'covered' nor 'spread'" (p.42).

A final area of consideration on vowel singing in the choir has to do with consonants. Where the consonant is placed will make a difference to how the vowel is formed, and vice versa. Swan (1973) says that in one school of thought, intonation is "achieved effectively by insisting that all pitch consonants be sung on the pitch of the vowel which follows" (p.46).

Vocal Resonance

Good intonation also seem to be dependent on the resonance of the voice. Heffernan (1982) states that the "failure to resonate" (p.69) may be one reason why choir is not in tune. Angell (1978) gives some practical advice on how to achieve resonance: " Use staccatto exercises on AH and EE. Center the resonance . . . . Work toward a fundamental in tone with matching resonances" (p.88).

Voice Type

It would seem from the literature that good intonation depends on the way each singer approaches singing in a choir. The voice type of the singer adds to the quality of sound, as well as the quality of intonation. Swan (1973) states that "choirs may flat because of the weight and thickness of the male tone " (p.43). James (1983) says that ". . .a disproportionate amount of chest voice compared to falsetto, may be making it impossible for the singer to reach the desired pitch" (p.16). He also notes that "if a singer sings flat, this is seen as a result of the vocal cords being too thick for the pitch attempted . . . . Similarly, a solution to sharp singing is approached by moving these variables so as to thicken the vocal cords" (p. 16). Chest voices are of special concern to a choir director with regard to intonation. Grant (1987) advises that one should "take away 'chest mechanism' - 'approach from above' can also be used with altos on mid-range pitches

which are being flatted from involving too much chest mechanism" (p.7). Alternatively, the clarity of voice will make a difference in the intonation of a choir. Heffernan (1982) asserts that intonation problems are often due to "fuzziness in the bass section . . . if the bass (indeed, the base) is solid, the damage will be slight" (p.69).

Vibrato

There is a general consensus that the vibrato in a voice makes a difference in the intonation for the choir. Swan (1973) states that there is "some tendency for choruses to sing under the pitch because of the prominence of vibrato and the fullness of tone; thus, at times, singers cannot hear exact pitch" (p.47). Powell (1991) notes that

> ". . . the vibrato must not be more that a quarter tone above and below the primary note. If the vibrato gets any wider, the voice with the wobble will be audible to everyone as singing a different pitch from the other singers in the section, and the section or sections will have no chance of sounding in tune" (p.40).

Vocal Training

There is general agreement that individual vocal training for singers will improve the choir's intonation. Powell (1991) reports that intonation will be improved with ". . . careful use of correct vocal techniques" (p.40). He also notes that " intonation problems occur not because the singers fail to hear pitches accurately, but because they are trying to produce the sound in such a way that they cannot sing the pitches accurately" (p.43). Thurman (1983) states that "inaccurate pitches occur because inefficient, interfering vocal coordination is being used to produce them . . . . Good intonation skills result from developing voice skills" (p.6). Isgro (1982) states that " the way to refine the musical ear is to strengthen those skills involved in isolating certain sounds . . ." (p.11). Kazez (1986) observes that "lack of practice, lack of coordination, an untrained ear" (p.130) all pertain to intonation. Gordon (1977) notes that "faulty pitch is usually caused by singers who . . .

have a vocal production problem inhibiting them from singing in tune" (p.165).

Tone production thus has a great effect on the intonation for a choir. Developing good singing technique with breathing apparatus in place and having the vowels properly and uniformly formed will enable a choir to achieve good intonation.

MUSICIANSHIP AND THE MUSIC

Sense of Phrase

A sense of the phrase, a feeling for 'where the music is going' is a matter of concern for some writers in fostering good intonation. Heffernen (1982) says that a reason why the choir loses correct intonation is "a lack of phrase sense. This will cause the pitch to sag" (p. 69). By understanding the length and depth of a phrase, a singer is able to focus on the end of the phrase. Thus the singer supports the sound and the intonation throughout the phrase, and for each of the notes gathered under that phrase.

Listening

There is general consensus regarding the importance of the singer's ability to listen, especially for the implementation of good choral intonation. Grant (1987) reports that "to reproduce any pitch we must do three things: listen, think and sing" (p.5). Moe (1972) says that choral intonation will be improved through "establishing listening habits that will insure consistently good intonation" (p.11). Rodby (1977) quotes Dr. Peter Wilhowsky as giving the key to 'getting in the groove' for good intonation: "The only way to get out of a rut is to realize that you are in it. In solo or choral singing this means that you have to learn to hear the sounds you are producing . . . you must learn to hear your own voice" (p.15). Angell (1978) realizes that "listening more to one's own singing and that of others will help" (p.88) in keeping a choir in tune. Dettwiler (1989) reports what specifically happens as we sing, and thus why she believes that the art of listening is so important to the choir: "When a singer hears a pitch before the sound is produced, the muscles of the larynx automatically adjust to the anticipated pitch in the ear. Thus, pitch is controlled by the ear" (p13).

Knowing the Music

One of the problems noted by some authors in the search for good intonation is the problem of not knowing the music - insecurity of pitches on the part of the singer. Doscher

(1991) states that "if the singer does not know the music, his or her mental concept of the pitches is tentative . . . sectional rehearsals provide a partial solution" (p.25).

Tonal Relationships

There is general agreement in the literature that the knowledge of tonal relationships in the music should be of vital concern to the singer. Listening to the harmonies created by the many voices will help in creating good intonation. Powell (1991) says that "vertical or harmonic tuning means listening and tuning to the other singers' notes" (p.40). Garretson (1975) says that "accurate pitch and intonation are basically dependent on . . . the degree of tonal awareness that each individual singer possesses" (p.182). He also notes that "a keen awareness of the tonal relationships between various intervals is essential to the achievement of good intonation as well as to skill in sight-reading" (p.173). Gordon (1977) has reports that "faulty pitch is usually caused by singers who . . . do not hear their part contextually" (p.165). Heffernan (1982) warns that an area of concern in maintaining intonation is "inattention to accidentals . . . the singers must be keenly alert to the harmonic implications created" (p.69).

Melodic Relationships

It has long been realized that specific notes and intervals in the melody line also cause problems in a choir's intonation. Many authors in this survey have stated the same. Powell (1991) observes that "horizontal or melodic tuning can be thought of as a refinement of the standard sight-singing training we try to provide all singers. It begins with learning each interval and progresses to fine-tuning each of those intervals" (p.41). Heffernan (1982) states that a choir sometimes loses intonation because of "insecurity in the size of the intervals to be sung" (p.69). He also notes that within a major key, 'mi' and 'la' are often sung flat. He recommends keeping these notes and all major thirds high and guarding against failure to attain clean leaps of fourths and fifths. Angell (1978) gives some

specific advice on overcoming some of these problems: "Memorize the keynote so it won't be forgotten, then place the other scale steps around this center" (p.89). Gordon (1977) suggests looking

> "for individual notes which control tonal structure. Leading tones, especially when they are employed for modulation to a new key, cannot be allowed to sag. The third of the chord must be sung with precision because it determines the mode of the chord. Notes which change the character of a sequence are also important. If not performed properly, sequential passages will sound muddy and ambiguous . . . . Treat unison passages with caution. From the standpoint of pitch, a choral ensemble is naked whenever it performs music in unison or at the octave. Watch for cadences ending with such treatment" (p.144).

The direction of passages, descending or ascending, has often been cited as a reason for intonation problems. Heffernen (1982) observes that the choir loses correct pitch due to "inattention to downward moving passages. Singers often drop their support when the line moves down" (p.69).

Repeated notes have also been found to be a cause of poor intonation. Heffernan (1982) notes that this is caused by inattention to ensuring that " the original pitch is maintained at each repetition" (p.69).

Audiation

Audiation, or "inner hearing" is a skill that can be learned through being in a choir, and is of primary concern for the singer in creating good intonation. Audiation is the ability to hear the music before it is sung. Jordan (1987) says that "audiation (term coined by Edward Gordon) takes place when one hears music silently. That is, when the sound is not physically present" (p.9). He further notes that "as a choir performs a piece of music, it is hoped that they are recalling that piece of music in audiation rather than attempting to reproduce what has been acquired through memorization . . . it is because of the confusion

over these processes that many ensembles experience intonation problems" (p.9). Gordon (1977) suggests that an exercise for improving intonation is inner ear development (p.166), which is synonymous with the term 'audiation'. Grant (1987) supports this view when he states that "the singer must develop a keen sense of inner hearing" (p.5). Heffernen (1982) also concurs when he observes that the cause of a choir losing correct intonation is "failure to listen and sing inwardly, in the imagination . . . failure to engage the brain before putting the voice in gear" (p.69). The literature thus supports the concept of 'audiation' as an important spect in the production of good choral intonation.

Tonal Memory

It has been noted that tonal memory, or the ability to remember where similar pitches are in the voice, is an important factor in the maintenance of good choral intonation. Grant (1987) reports that "flatting or sharping can occur during a piece even while the intonation of individual chords is good, if the choir has not been trained to memorize and recall important tonal reference points" (p.5).

Seating Arrangements

A major area of research in intonation concerns seating arrangements in the choir. This includes placement of specific voices and placement of sections. Heffernan (1982) reports that a choir may lose correct intonation because of "incompatible voices singing together . . . .The position of the individual singers is a vital point in artistic choral singing" (p.69). In deciding where to place sections, Kohut and Grant (1990) note that

> " singers hear best those voices and sections that are closest to them. By placing the sopranos and basses next to each other ... these parts, which frequently have octaves to tune, will be in closest proximity. Also, the inner parts are also close to each other for easier tuning and balance. Further related to this principle is the fact that performers more readily hear those behind them than those in front or to the sides" (p126).

"Voices which do not blend well because of size, color, or vibrato can be 'masked' to a degree by placing them in rows farther back in the section or moving them to outer positions (but not the end) of the rows" (Kohut & Grant, 1990, p.128). Johnson (1978) agrees with this observation: "The second row should receive the most attention in the arrangement of choir personnel during rehearsal. It should be the major point of focus in the conductor's experimentation with the sound of the choir. Singers who blend well, are in-tune, and are musically intelligent should be given first considerations for the second row" (p.14).

Some choirs utilize a quartet arrangement in which one voice from each section will stand together. Stocker (1975) asserts that

> "quartet singing would probably reduce the liklihood of loss of pitch for the entire choir if one individual flatted. The reason for this seems to be related to the unit nature of the quartet within the larger unit of the choir. Any individual who tends to sing flat has more opportunity to drag down the entire ensemble by lowering his whole section than if he is singing with three other people in quartet who are not singing the same notes. . . . In the larger choral groups of over 65 voices, a problem could exist in a sectional singer's being unable to hear across the choir. If a last row bass cannot hear what the front row sopranos are singing, his ability to tune accurately and to work with their line has been severly limited . . . . Singing in sections under these circumstances isolates those singers in the back because their only points of reference are those in their section next to them. In the quartet arrangement there may still be a sense of isolation due to poor acoustics but the points of reference are more complete because the rest of the texture is represented in the other members of the quartet" (p.9).

Tempo

The time available to listen and tune as the music is being sung will have an effect on intonation. The tempo of the music will thus make a difference to the accuracy of intonation possible for the choir. Grant (1987) suggests that "intonation in a chordal passage can be improved by using the ooh and sustaining each chord beyond its written value. This allows the singer time to listen and make the precise pitch corrections needed" (p.6). He also notes that "tempo can affect the singer's ability to efficiently sing in tune" (p.7). Heffernen (1982) also finds tempo to be a reason for the choir's losing correct intonation: " Rapid tempo does not give much time to find the pitch, and slow tempo may cause the music to lose its forward motion" (p.69).

Dynamics

The dynamic level used by the choir can also affect intonation. Grant (1987) observes that "volume . . . can affect the singer's ability to efficiently sing in tune . . . softer singing allows for better listening and generally better tuning" (p.7). Heffernen (1982) states that intonation is affected negatively by dynamics which are too loud or too soft. "Loud singing is very difficult to keep in tune . . . . Very soft singing . . . must be well supported" (p.69). James (1983) suggests that if the choir is singing flat, "perhaps a lower dynamic level will help" (p.16).

Rhythmic Pulse

There has been a great deal of attention given to the rhythmic drive of the piece, and how this aids in good intonation. Swan (1973) describes one school of thought as seeing poor intonation as a result of "poor rhythmic sense" (p.48). This rhythmic pulse is also described as 'subdivision of the beat', which may mean creating an inner pulse that is much quicker than the notes written on the page. Grant (1987) says that "a strong sense of rhythmic drive can also help defeat sagging pitch . . . .Without the inner propulsion of rhythmic subdivision, the unit beat, although steady, can become dull and passive" (p.7).

Tessitura

The tessitura of a piece of music is another consideration which influences choral intonation. Doscher (1991) warns that "if the tessitura is too high and stays in the upper passaggio (e 2 - g2 for females and d1 - f 1 for males) too long, the laryngeal muscles ... are overtaxed and intonation becomes unsatisfactory. If the tessitura is too low and the piece stays in that area too long, the top notes often carry too much weight and are flat" (p.27).

Musicianship and the Music: A Summary

Many different aspects of the music and the musician can affect the intonation of the choir as a whole. The placement of the singer within the group; the knowledge of the difficulties which may be inherent in the harmony and the melody line of the piece; the tempo, dynamics, and rhythm of the music; and the listening skills of the singer are all vital areas of concern for the choir as a whole to creating good choral intonation.

MENTAL AND PHYSICAL ATTITUDES

Health

Many authors have voiced their concern over the physical condition of the singer, and the effect that this has on the choir and its intonation. Medical conditions are of utmost importance in influencing the accuracy of a singer's intonation. Marvin (1988) observes that "healthy voices, housed in healthy bodies, full of energy, have a great capacitiy to sing in tune" (p.29). Cleveland (1990) voices concern over a specific health problem that may exist in many singers: "Such was the case with several of the students exhibiting pitch difficulties . . . . The influence of gastric reflux on singing performance . . . results in making the arytenoids red, swollen, and, in many cases, heavy and less capable of a normal response to typical breath and muscle management" (p.34).

Along with healthy bodies, adequate rest is also needed to keep that body and voice healthy. Doscher (1991) states that "there is no single more important preparation for any athlete before a 'performance' than sufficient rest" (p.25).

Muscle Tension

Muscle tension in the tongue, jaw, and throat areas can also lead to poor intonation. Powell (1991) notes that intonation problems occur because of " excess tension in the jaw, neck, and shoulders; poor posture; and poor breath mangement" (p.43). Doscher (1991) states that "certain intonation problems within a choral section often can be traced to depressed tongue vocal patterns. The best antidote is to precede all vowels in a vocalize with the unvoiced 'th'". . . . In all cases of muscular tension such as a tight jaw, stiff soft palate, or depressed tongue, be sure to see whether increased air flow will help the problem" (p.29). Kazez (1986), in listing muscle tension as a cause of poor intonation, refers to the relationship between muscle tension and performance: "There also exists an inverted - U relationship between muscle tension and performance" (p.131), meaning that the more excitement caused by performance, the more the muscle tension increases as well, forming, in scientific terms, an "inverted-U" on paper. This is based on observations that in the excitement of performance, the muscle tension will increase, making the singer less efficient in his singing, and thus unable to maintain good intonation.

In addition to the negative influence of muscle tension, performance anxiety itself may have a detrimental influence on intonation. This has been noted by Kazez (1986) when he observes that a cause of poor intonation may be ". . . performance anxiety or 'stage fright'. . . . There exists an inverted - U relationship between level of arousal (or motivation or drive) and performance in a discrimination task. . . " (p.130). The amount of anxiety may be too great during performance, which creates a negative situation for the singer with regard to the maintenance of good intonation.

Maturity

The maturity of both the singer and his/her voice is another consideration in determining the causes of poor intonation. Thurman (1983) finds that "the physically normal singer who has difficulty with pitches may not have developed yet the precise laryngeal coordination required for accurate pitches" (p.6). Doscher (1991) also notes that "if the voice is growing in size or changing tessitura, unsatisfactory intonation around c' for males and c2 for females is common. In both cases the lower passaggio area seems to be most vulnerable to fluctuating intonation, either flatting or sharping, depending upon the vowels affected" (p.26).

Psychological Factors

Psychological factors of the singer, the conductor, or the rehearsal may be another cause of poor intonation. Heffernan (1982) suggests that a reason why the choir loses correct intonation is "psychological and physiological factors that are beyond anyone's control . . . . It is often better to drop the whole matter and wait for a better day" (p.69). Heffernan (1982) reports that another psychological influence on intonation is "disinterest and /or boredom" (p.69). The psychological factors contributing to choral intonation demand thought from both the singer and conductor before, during, and after the rehearsal. Because these factors are psychological, they can have a long-term effect on the choir's sound and intonation.

Mental and Physical Attitudes: A Summary

It is thus evident that mental and physical attitudes contribute substantially to good choral intonation. Health and muscle tension, the maturity of the singer, as well as psychological factors all have a role to play in creating intonation of some kind in the choir!

ENVIRONMENTAL FACTORS

Placement of Music

The physical placement of the music will affect intonation, as demonstrated by Doscher (1991) : "Is the music held too low? If so, the head and chin are forced down, and the extrinsic laryngeal muscles (strap muscles) cannot function cooperatively . . . the most common intonation result is flatting" (p.25).

Rehearsal Room Factors

Rehearsal room factors have a great influence on the quality of intonation. Doscher (1991) asks: "Is the rehearsal room or performance hall too hot? If so, flatting often occurs" (p.25). Heffernan (1982) reports choirs lose correct intonation due to "inability of the choir members to hear each other (p.69). He suggests seeking active acoustics for rehearsals and concerts.

THE CONDUCTOR'S REPONSIBILITY

Rehearsal Time

The amount of rehearsal time available for learning a piece of music affects choral intonation. Kazez (1986) cites lack of practice as a cause of poor intonation. Doscher (1991) believes that ". . . practice periods must be carefully monitored to attain maximum technical development without the negative effects of overtiring" (p.25).

Warm-ups

Warm-ups have been proven to be a vital area of concern in the creation of good intonation. Powell (1991) believes in the importance of "using warm-ups to sensitize the singers to the problem and reinforcing the concepts through the music the group is preparing to perform" (p.40). Angell (1978) warns that "vocalizing must not get to be just exercise work with no goal in mind" (p.89), and Lamb (1988) observes that "the warm-up is a tune-up . . . refining the use of their voices within a choral ensemble toward a unified goal" (p.149).

Semantics

The semantics of the conductor in his/her feedback to the choir have considerable influence on the maintenance of good intonation. This has to do with psychological factors—using the right words for a desired effect. Thurman (1983) suggests that the use of the words "high" and "low" are perceived by the singer as difficult for the voice to 'reach' the notes; " 'Faster' or 'slower' would be more accurate" (p.5). Some other terminology that Thurman suggests as helpful when thinking about our singing is : "I'm going to allow them to flow through me. I'm going to let them emerge from me. I'm going to release them into the room" (p.6). He suggests that this psychology of "high pitches taps unconscious capacities which have a better chance of producing accurate pitches with better tone quality" (p.6). Doscher (1991) finds that "semantically, words like 'energy' and 'buoyancy' create a less static muscular condition than the word 'support'" (p.28). Grant (1987) notes that using images will help keep good intonation: "picture yourself far above the pitch that you literally have to tip your head down slightly to see the top of the note . . . . Let the vocal tone and pitch be lifted by a hot air balloon rather than pushed up by a rocket" (p.7).

Ear Training

The conductor's own ear training has proven to be of immense value to good intonation. Marvin (1988) holds that "singing in tune requires good ears (conductor's and singers') and consistent reinforcement" (p.29). Jordan (1987) also notes that "it is crucial that the conductor understands how he hears intonation, so that he can teach that hearing process to his singers" (p.9).

Vocal Understanding

The conductor's own understanding of the individual voice as well as choral sound will also affect the intonation of a choir. Jordan (1987) says that "in essence, excellent choral intonation must grow from a thorough understanding of HOW a choir and its singers hear music that they are rehearsing and performing" (p.9).

It is also important for conductors to be aware of strategies for improving intonation. Powell (1991) asserts that we should be able to describe the problem and "then provide a method to help the chorister eliminate it" (p.40). Grant (1987) agrees when he states that "it is the task of the teacher/conductor to help each singer develop a sense of inner hearing, tonal memory, and the ability to sing simple childhood songs and complex masterworks in a well-tuned manner" (p.5).

The Conductor as Information Giver

Another important factor in improving choral intonation is informing choir members when they are flat, sharp, or singing out of tune. Powell (1991) suggests that "correcting intonation problems is a two-step process: First, make the chorister aware of the problem" (p.40). Major (1982) cautions us to "never assume that the choir perceives their performance to be correct; the director must inform them" (p.13). Grant (1987) mentions that "the first step to accurate pitch production and intonation is to provide the singer with a clear understanding of what it means to make small changes in pitch and to provide exercises in doing so" (p.7). Isgro (1982) concurs when he cautions that " one cannot monitor— adjust and correct—what one hears if one does not know what the sounds should be" (p.11).

Consistency

Consistency is another important factor influencing the maintenance of good intonation. Powell (1991) believes that "the key is to attack intonation problems from

several different directions and to be consistent" (p.40). Swan (1973) explains that one school of thought advocates that the choral director tune all chords constantly beginning with unisons. Gordon (1977) observes that "the director must insist on proper vowel formation and adequate support since these two factors are instrumental in maintaining proper intonation" (p.165).

The choral conductor has a great responsibility in affecting choral intonation. Planning far enough in advance, using of warm-ups efficiently, having a knowlege of the voice and being able to express that knowlege to the choir, as well as being consistent in his/her own listening, will all help to maintain good choral intonation.

CONCLUSION AND SYNTHESIS

It is interesting to note the different approaches to choral intonation advocated by writers before and after 1970. Articles after 1970 concentrate primarily on aspects of tone production, problems in the music itself, muscle tension, and the responsibility the choral director has in maintaining good choral intonation. Writers after 1970 also make references to overtones as one of the by-products of good intonation. Marvin (1988) observes that "in reinforcing the overtone series, good intonation creates a rich sonority that invites the listener into the music and heightens his awareness of the beauty of the choir" (p.29).

Seating arrangements have received considerable focus in the past 30 years, as have the types of voices and the vocal training attached to them. Audiation, problems in the melody line, an understanding of the musical phrase, and tonal relationships have been given a great deal of attention since 1970.

Understanding the factors which influence intonation is of great importance to the choral conductor. Preparation begins with the audition process: identifying voices which will match in timbre. A seating arrangement must then be determined to best benefit the

voices chosen. The type of intonation system that will be used must also be considered. While equal tempered tuning may generally be best, some pieces of music or situations may require that consideration be given to one or more of the other tuning systems.

Preparation for rehearsals must include analysis of vocal lines for potential intonation problems and planning rehearsal stategies that will contribute to the building of audiation skills. Vowel shape and colour must be planned in advance with all rehearsal stategies being aimed at enhancing singers' listening skills. Preparation for both rehearsals and performance must include considerations of the acoustic, lighting and ventilation of venues.

Finally, the conductor must recognize the importance of his/her own ear training and listening skills and the power of the verbal feedback given to the singers in improving choral intonation. The combination of these multiple factors results in the foundation of good choral singing and accurate intonation.

REFERENCES

Angell, Warren M. (1978). Look Up, You Singers. Dallas, Texas: Crescendo.

Cleall, Charles (1955). Vocal Production in Choral Technique. London: Novello.

Cleveland, Thomas F. (1990). "Vocal Pedagogy in the Twenty-First Century: Some New Observations on Pitch Problems." The NATS Journal, 46/ 3: 34-52.

Darrow, Gerald (1975). Four Decades of Choral Training. Metuchen: Scarecrow Press.

Dettwiler, Peggy (1989). " Developing Aural Skills Through Vocal Warm-ups." The Choral Journal, 30/ 3: 13-19.

Doscher, Barbara M. (1991). " Exploring the Whys of Intonation Problems". The Choral Journal, 32/ 4: 25-30.

Garretson, Robert L.(1975). Conducting Choral Music. 4th edition. Boston: Allyn and Bacon.

Gordon, L.(1977). Choral Director's Complete Handbook. NY: Parker .

Grant, Joe (1987). "Improving Pitch and Intonation" The Choral Journal, 27/ 5: 5-9.

Heffernen, Charles (1982). Choral Music: Technique and Artistry. NJ: Prentice-Hall.

Isgro, Robert (1982). " Some Thoughts on Ear Training for the Choral Director." The Choral Journal, 22/ 9: 11-13.

James, David (1983). " Intonation Problems at the Level of the Larnynx." The NATS Bulletin, 39/ 4: 14-16.

Johnson, Deral J.(1978). "Influence of Personnel Placement on Choral Blend." The Choral Journal, 18/ 9: 12-14.

Jones, Arnold (1977). "Choral Tone Quality and Blend". The School Musician, 49/ 2: 64 -65.

Jordan, James M. (1987). "The Pedagogy of Choral Intonation: Efficient Pedagogy to Approach an Old Problem." The Choral Journal, 27/ 9: 9-16.

Kazez, Daniel (1986). " Causes and Cures of Poor Intonation : Applications of Audiological and Psychological Research." College Music, 26/ 130-135.

Kohut, Daniel and Grant, Joe W. (1990). Learning to Conduct and Rehearse. Englewood Cliffs, NJ: Prentice Hall.

Lamb, Gordon H.(1988). Choral Techhniques. 3rd edition. Dubuque, Iowa: Wm C. Brown.

Lindley, Mark (1980). "Equal Temperment". The New Grove Dictionary of Music and Musicians, vol. 6. London: Macmillan Publishing Ltd., 218.

Lindley, Mark (1980). "Just Intonation". The New Grove Dictionary of Music and Musicians, vol. 9. London: Macmillan Publishing Ltd., 756-758.

Lindley, Mark (1980). "Mean-tone". The New Grove Dictionary of Music and Musicians, vol. 11. London: Macmillan Publishing Ltd., 875.

Lindley, Mark (1980). "Pythagorean Intonation". The New Grove Dictionary of Music and Musicians, vol. 15. London: Macmillan Publishing Ltd., 485-487.

Lock, William (1983). "The Development of Choral Tone: Problems or Possibilities?" Journal of Church Music, 25/ 3: 4-5.

Major, James E. (1982). "A Choral Rehearsal Model." The Choral Journal, 23/ 3: 13-14.

Marvin, Jameson (1988). "The Conductor's Process." Five Centuries of Choral Music - Essays in Honor of Howard Swan. NY: Pendragon Press.

Moe, Daniel (1972). Basic Choral Concepts. Minn: Augsburg .

Powell, Steven (1991). "Choral Intonation - More Than Meets the Ear." Music Educators Journal, 77/ 9: 40-43.

Robinson, Ray, and Winold, Allen (1976). The Choral Experience : Literature, Materials, and Methods. NY: Harper and Row.

Rodby, Walter (1977). " A Declaration of Fundamentals: Part II- Intonation." The School Musician, 48/ 6: 14-16.

Stocker, David (1975). "Some Thoughts on the Positioning of Voices for Choral Performance." The Choral Journal, 16/ 2: 9-11.

Swan, Howard (1973). "The Development of a Choral Instrument." Choral Conducting: A Symposium. Harold A Decker, Julius Hereford, editors. NJ: Prentice Hall.

Thurman, Leon (1983). "Putting Horses Before Carts: Voices and Choral Music." The Choral Journal, 23/ 6: 5-9.

Wilson, H.R. (1959). Artistic Choral Singing. NY: Schirmer.

Department of Music
University of Alberta

In Recital

JOY BERG, conductor

Candidate for the Master of Music degree
in Choral Conducting

featuring

"Hosanna and Friends" Choir

Nathan Berg, baritone

Friday, January 8, 1993 at 8:00 pm

Convocation Hall, Old Arts Building

PROGRAM

Three Motets

1. *O Magnum Mysterium* (1572)	Tomás Luis de Victoria (1548-1611)
2. *Pater Noster* (1926, revised 1949 with Latin)	Igor Stravinsky (1882-1972)
3. *Quaerite primum regnum Dei*, KV 86 (1770)	Wolfgang Amadeus Mozart (1756-1791)

Ich Habe Genug, BWV 82 (1727)	Johann Sebastian Bach (1685-1750)

Nathan Berg, baritone
Melinda Cooke, violin I
Don Zurowski, violin II
Michael Moser, viola
Ronda Metzies, cello
Charleen Megyesi, oboe
Judy Lowrey, organ

Es ist das Heil uns kommen her, Op. 29, No. 1 (1864)	Johannes Brahms (1833-1897)

Fantasia on Christmas Carols (1912)	Ralph Vaughan Williams (1872-1958)

Nathan Berg, baritone
Melinda Cooke and Lyndi Pollock, violin I
Don Zurowski and Eva Butler, violin II
Michael Moser and Rob Ashworth, viola
Ronda Metzies and Tim Ashworth, cello
Judy Lowrey, organ
Lael Johnston, timpani
Greg Ferguson, chimes, triangle

TEXT AND TRANSLATIONS

O Magnum Mysterium

O Magnum mysterium,
et admirabile sacramentum,
ut animalia viderent Dominum natum,
jacentem in praesepio.
O beata Virgo, cujust viscera meruerunt
portare Dominum Jesum Christum.
Alleluia.

O great mystery
and wondrous sacrament.
That animals might see the new-born Lord
Lying in their manger.
O, Blessed Virgin,
Who wast worthy of bearing our Lord Jesu
Allelulia.

Pater Noster

Pater noster qui es in caelis,
sanctificetur nomen tuum:
adveniat regnum tuum:
fiat voluntas tua, sicut in caelo et in terra:
panem nostrum quotridianum da nobis hodie:
et dimitte nobis debita nostra,
sicut et nos dimittimus debitoribus nostris:
et ne nos inducas in tentationem:
sed libera nos a malo.
Amen.

Our Father, who art in heaven,
Hallowed be Thy name.
Thy kingdom come,
Thy will be done on earth as it is in heaven
Give us this day our daily bread,
and forgive us our trespasses,
as we forgive those who trespass against
Lead us not into temptation,
but deliver us from evil.
Amen.

Quaerite primum regnum Dei

Quaerite primum regnum Dei
et justitam ejus:
et haec omnia
adjicientur vobis.
Alleluia

Seek first the kingdom of God,
And His justice seek,
and lo, all these things
shall be a gift unto you.
Alleluia

Ich Habe Genug

1. Aria
Ich habe genug,
ich habe den Heiland,
das Hoffen der Frommen,
auf meine begierigen Arme genommen.
Ich hab' ich erblickt,
mein Glaube hat Jesum an's Hertze gedrückt,
nun wünsch' ich noch heute mit Freuden
von hinnen zu scheiden:
ich habe genug!

1. Aria
I have enough;
I have taken the Saviour,
The hope of the Gentiles,
Into my yearning arms.
I have seen him,
My faith has clasped Jesus to my heart;
Now I desire but even today
To depart with joy from here.
I have enough!

2. Recitativo
Ich habe genug!
Mein Trost ist nur allein,
daß Jesus mein und ich sein eigen möchte sein.
Im Glauben halt' ich ihn,
da seh' ich auch mit Simeon
die Freude jenes Lebens schon.
Laßt uns mit diesem Manne ziehn!
Ach, möchte mich von meines Leibes Ketten
der Herr erretten.
Ach, wäre doch mein Abschied hier,
mit Freuden sag' ich, Welt, zu dir:
ich habe genug!

2. Recitativo
I have enough!
My only comfort is
That Jesus might be mine and I be his.
In faith I hold him,
and even with Simeon I already see
The bliss of that life.
Let us depart with this man!
Ah, let the Lord redeem me
From the fetters of this my life.
Ah, if only the hour of my departure were
With joy I would say to you, oh world,
I have enough!

3. Aria

Schlummert ein, ihr matten Augen,
fallet sanft und selig zu,
Welt, ich bleibe nicht mehr hier,
hab'ich doch kein Theil an dir,
das der Seele könnte taugen.
Schlummert ein...
Hier muß ich das Elend bauen,
aber dort, dort werd ich schauen
süßen Frieden, stille Ruh.

4. Recitativo

Mein Gott! wann kommt
das schöne: Nun!
da ich in Frieden fahren werde
und in dem Sande Kühler Erde,
un dort, bei dir, im Schoße ruhn?
Der Abschied ist gemacht.
Welt! gute Nacht.

5. Aria

Ich freue mich auf meinen Tod,
ach, hätt' er sich schon eingefunden.
da entkomm' ich aller Noth,
die micht noch auf der Welt gebunden.
Ich freue mich auf meinen Tod...

Es ist das Heil uns kommen her

Es ist das Heil uns kommen her
von Gnad und lauter Güten:
Die Werke helfen nimmermehr,
sie mögen nich behüten!
Der Glaub sieht Jesum Christum an:
der hat g'nug für uns all getan,
er ist der Mittler worden

Fantasia on Christmas Carols

This is the truth sent from above,
The truth of God, the God of love:
Therefore don't turn me from your door,
But hearken all, both rich and poor.

The first thing which I will relate
Is that God did man create,
The next thing which to you I'll tell,
Woman was made with man to dwell.

Then, after this, 'twas God's own choice
To place them both in Paradise,
There to remain from evil free,
Except they ate of such a tree.

3. Aria

Go to sleep, you weary eyes,
Gently, blessed, close your lids;
Oh, world, I will not longer tarry here,
As I have no more part in you
That could benefit my soul.
Go to sleep...
Here I live in misery,
But there, there I shall see
Sweet peace, quiet rest.

4. Recitative

My God! When will the blessed
"Now" come,
When I shall depart in peace,
And in the sand of the cool earth
rest in your embrace?
My farewells have been taken.
World, good night.

5. Aria

I long for my death;
Ah, if only it had already come.
Then I shall escape all distress
That still binds me here on earth.
I long for my death...

To us salvation has come,
of mercy and underfiled grace
Our works no longer help us
We desire not to protect them.
Our faith looks to Jesus Christ
He has done enough for us.
He has become the mediator.

Fantasia on Christmas Carols (continued)
And they did eat, which was a sin,
And thus their ruin did begin,
Ruined themselves, both you and me,
And all of their posterity.

Thus we were heirs to endless woes,
Till God the Lord did interpose,
And so a promise soon did run,
That he would redeem us by his Son.

Come all you worthy gentlemen that may be standing by,
Christ our blessed Saviour was born on Christmas day.
The blessed Virgin Mary unto the Lord did pray.
O we wish you the comfort and tidings of joy!

Christ our Blessed Saviour now in the manger lay
He's lying in the manger, while the oxen feed on hay
The blessed Virgin Mary unto the Lord did pray.
O we wish you the comfort and tidings of joy.

On Christmas night all Christians sing
To hear the news the angels bring.
News of great joy, news of great mirth,
News of our merciful King's birth.

When sin departs before thy grace,
Then life and health come in its place.
angels and men with joy may sing,
all for to see the newborn King.

From out of darkness we have light,
Which makes the angels sing this night,
"Glory to God and peace to men.
Both now and evermore, Amen."

God bless the ruler of this house and long on may he reign,
Many happy christmases he live to see again!
God bless our generation, who live both far and near,
And we wish them a happy New Year!

Reception to follow in the Arts Building Lounge, Room 232

"Hosanna and Friends" Choir

Soprano I
*Juliane Betke
*Monica Betke
*Bev Boren
*Lorelei Campbell
Karen Charlton
*Carol Chrapko
*Kari Hendricksen
Nancy Rogers
*Johanna Volz

Soprano II
*Doreen Betke
Raegina Bucknell
Cindy Crawford
*Millie Dofka
*Christine Jackman
*Graeme Jahns
*Wally Teimstra

Alto I
Rhonda Berg
*Lorelei Betke
*Rodina Couling
*Colleen Jahns
*Kirstin Jahns
*Cheryl Querengesser
*Rose Schwart-Molzan
Elizabeth Sommer
*Colleen Vogel

Alto II
*Lorna Arndt
*Heidi Betke
*Susan Querengesser
Evelyn Pfeiffer
Kirsten Sonnichsen

Tenor
*Douglas Jahns
*Art Querengesser
Roger Schultz
*Mark Vogel
Tim Zimmerman

Baritone
*Walter Adolf
*Carl Betke
*Barry Couling
*Herb Dofka
Gerry Paulson
Mike Zimmerman
Troy Lamoureaux

Bass
Tim Berg
Rob Kelly
Cliff Guebert
*Mark Weisberg

Rehearsal pianist
*Kari Hendricksen

Speakers
*Barbara Trebrell
Bruce Cable

*Hosanna Lutheran Church Choir Members

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